

CLAIMS

1. A coating liquid for forming an electrode, the coating liquid including as constituents:

5 a granulated particle containing an electrode active material, a conductive auxiliary agent having an electronic conductivity, and a binder capable of binding the electrode active material and conductive auxiliary agent to each other; and

a liquid adapted to disperse or dissolve the granulated particle.

10 2. A coating liquid for forming an electrode according to claim 1, wherein the granulated particle further contains a conductive polymer.

3. A coating liquid for forming an electrode according to claim 1 or 2, further containing, as the constituent, a conductive polymer or a monomer to become a constituent material of the conductive polymer.

4. An electrode comprising at least:

15 a conductive active material containing layer including, as a constituent material, a granulated particle containing an electrode active material, a conductive auxiliary agent having an electronic conductivity, and a binder capable of binding the electrode active material and conductive auxiliary agent to each other; and

20 a conductive collector member disposed in electric contact with the active material containing layer.

5. An electrode according to claim 4, wherein the active material containing layer further contains a conductive polymer.

25 6. An electrode according to claim 4 or 5, wherein the granulated particle further contains a conductive polymer.

7. An electrochemical device comprising, at least, an anode, a

cathode, and an ionically conductive electrolyte layer, the anode and cathode being arranged so as to oppose each other by way of the electrolyte layer;

wherein at least one of the anode and cathode comprises at least:

5 a conductive active material containing layer including, as a constituent material, a granulated particle containing an electrode active material, a conductive auxiliary agent having an electronic conductivity, and a binder capable of binding the electrode active material and conductive auxiliary agent to each other; and

10 a conductive collector member disposed in electric contact with the active material containing layer.

8. An electrochemical device according to claim 7, wherein the active material containing layer further contains a conductive polymer.

9. An electrochemical device according to claim 7 or 8, wherein the granulated particle further contains a conductive polymer.

15 10. An electrochemical device according to claim 7 or 8, wherein the electrolyte layer contains a solid electrolyte.

11. An electrochemical device according to claim 10, wherein the solid electrolyte contains a ceramic solid electrolyte or a solid polymer electrolyte.

20 12. A method of manufacturing a coating liquid for forming an electrode, the method comprising the steps of:

coating and integrating a particle made of an electrode active material with a conductive auxiliary agent and a binder, so as to yield a granulated particle; and

25 adding the granulated particle to a liquid adapted to disperse or dissolve the granulated particle.

13. A method of manufacturing a coating liquid for forming an electrode according to claim 12, wherein the step of yielding the granulated particle includes the steps of:

5 preparing a material liquid containing the binder, the conductive auxiliary agent, and a solvent; and

attaching the material liquid to the particle made of the electrode active material, and drying the liquid so as to remove the solvent from the material liquid attached to a surface of the particle made of the electrode active material and bring the particle made of the electrode active material and the particle made of the conductive auxiliary agent into close contact with each other by way of the binder.

14. A method of manufacturing a coating liquid for forming an electrode according to claim 13, wherein, in the step of yielding the granulated particle, the material liquid is attached by spraying to the particle made of the electrode active material.

15. A method of manufacturing a coating liquid for forming an electrode according to claim 13 or 14, wherein the solvent contained in the material liquid is adapted to dissolve the binder and disperse the conductive auxiliary agent.

20 16. A method of manufacturing a coating liquid for forming an electrode according to claim 13 or 14, wherein a conductive polymer is further dissolved in the material liquid.

25 17. A method of manufacturing a coating liquid for forming an electrode according to claim 12 or 13, wherein a conductive polymer or a monomer to become a constituent material of the conductive polymer is further dissolved in the liquid.

18. A method of manufacturing an electrode comprising, at least, a conductive active material containing layer including an electrode active material, and a conductive collector member disposed in electric contact with the active material containing layer, the method comprising the steps of :

5 applying the coating liquid for forming an electrode manufactured by the method of manufacturing a coating liquid for forming an electrode according to claim 12 or 13 to a part to be formed with the active material containing layer in the collector member; and

10 solidifying a liquid film made of the coating liquid for forming an electrode applied to the part to be formed with the active material containing layer in the collector member.

19. A method of manufacturing an electrode according to claim 18, wherein the coating liquid for forming an electrode contains a monomer to become a constituent material of a conductive polymer; and

15 wherein a polymerization reaction of the monomer is advanced in the step of solidifying the liquid film, so as to generate the conductive polymer.

20. A method of manufacturing an electrode according to claim 19, wherein the conductive polymer is a UV-curable resin; and

20 wherein a polymerization reaction of the monomer to become a constituent material of the liquid film is advanced in the step of solidifying the liquid film, so as to generate the conductive polymer.

21. A method of manufacturing an electrochemical device comprising, at least, an anode, a cathode, and an ionically conductive electrolyte layer, the anode and cathode being arranged so as to oppose each other by way of the electrolyte layer;

25 wherein the electrode manufactured by the method of manufacturing

an electrode according to claim 18 is used as at least one of the anode and cathode.